The discovery of periodic mesoporous materials in early 1990s has opened wide range of opportunities in ordered porous solids. The development of such materials of well-defined geometry with precise and easily controllable pore shape and size is of great importance in many areas of modern science and technology. The unique flexibility in terms of synthetic conditions, pore size tuning, high surface area, large internal hydroxyl groups, framework substitution, etc. has created new avenues not only in catalysis but also in the areas of advanced materials, environmental pollution control strategies and separation processes. On the other hand, the preparation of high quality materials with designed pore structures is of paramount importance for many applications in areas including catalysis, adsorption, separation and nanomaterials. In designing such materials, several characteristics such as modification of framework structure, pore size, shape and interconnectivity, etc. must be addressed. In this presentation, a brief account of the recent development on the subject will be discussed.

References